Practice: 342 - Critical Area Planting

Scenario: #1 - Dozer, Introduced Plants with N,P and K fertilizer

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Costs include a dozer for leveling, shaping, or pulling extra heavy tillage equipment, seedbed preparation with typical tillage implements, bermudagrass seed or sprigs, and fertilizer needed for establishment.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc) or human disturbance. The exposed areas have visible rills and possibly small gullies. Gullies and rills are treatable by shaping with a dozer or extra heavy tillage equipment such as a rhome disk and minimal blade work. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has low fertility.

After Situation:

This typical 1.0 acre critical area is stabilized by smoothing rills and shaping small gullies with heavy tillage and dozer work and then applying fertilizer and seeding. Soil amendments will be incorporated at an depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Application of fertilizer will be made as outlined in the standard. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, sprig or seed adapted grass species (such as bermudagrass) for a vegetative cover.

Scenario Feature Measure: Area shaped and planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $494.34 **Scenario Cost/Unit:** $494.34

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$57.18	1	$57.18
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	1	$8.97
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	1	$5.48
Ground sprigging	1101	Includes costs for equipment, power unit and labor.	Acre	$81.04	1	$81.04
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$23.61	1	$23.61
Materials						
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	20	$10.80
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	1	$64.09
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$217.57	1	$217.57

Practice: 342 - Critical Area Planting

Scenario: #2 - Dozer, Introduced Plants with NPK and Lime

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Costs include a dozer for leveling, shaping or pulling extra heavy tillage equipment, seedbed preparation with typical tillage implements, introduced grass seed or sprigs, and fertilizer/lime needed for establishment.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc) or human disturbance. The exposed areas may be caused from natural occurrences (fire, flood, etc) or human disturbance. The exposed areas have visible rills and possibly small gullies. Gullies and rills are treatable by shaping with a dozer or extra heavy tillage equipment such as a rhome disk and minimal blade work. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has low fertility and a pH imbalance.

After Situation:

This typical 1.0 acre critical area is stabilized by smoothing rills and small gullies with heavy tillage and minimal blade work and then applying fertilizer, lime and seed. Soil amendments will be incorporated at an depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply fertilizer and lime as outlined in the standard. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, sprig or drill adapted grass species (such as bermudagrass) for a vegetative cover.

Scenario Feature Measure: area shaped and planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $602.86 **Scenario Cost/Unit:** $602.86

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$8.18	1	$8.18
Ground sprigging	1101	Includes costs for equipment, power unit and labor.	Acre	$81.04	1	$81.04
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	1	$5.48
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	1	$8.97
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$57.18	1	$57.18
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$23.61	1	$23.61
Materials						
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	20	$10.80
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$100.34	1	$100.34
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	1	$64.09
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$217.57	1	$217.57

Practice: 342 - Critical Area Planting

Scenario: #3 - Normal till, Introduced grass, NPK

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance or vegetation of newly constructed conservation practices such as ponds, waterways, diversions, etc. Costs include tillage equipment, seedbed preparation with typical tillage implements, introduced grass seed or sprigs, and fertilizer needed for establishment.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc), human disturbance or recently installed conservation practices that require vegetation. The exposed areas may have visible rills. All rills are treatable with tillage equipment. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has low fertility.

After Situation:

This typical 1.0 acre critical area is stabilized by smoothing rills and then applying fertilizer and seed. When used following the construction of conservation practices, the practice is protected against erosion and will function according to design. Soil amendments will be incorporated at an depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply fertilizer as outlined in the standard. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, sprig or drill adapted grass species (such as bermudagrass) for a vegetative cover.

Scenario Feature Measure: area smoothed and planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $195.98 **Scenario Cost/Unit:** $195.98

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	1	$5.48
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	1	$8.97
Ground sprigging	1101	Includes costs for equipment, power unit and labor.	Acre	$81.04	1	$81.04
Materials						
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	1	$64.09
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	20	$10.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80

Practice: 342 - Critical Area Planting

Scenario: #4 - Normal till, Introduced Grass with NPK and Lime

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance or vegetation of newly constructed conservation practices such as ponds, waterways, diversions, etc.. Costs include tillage equipment, seedbed preparation with typical tillage implements, introduced grass seed or sprigs, and fertilizer/lime needed for establishment.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc) human disturbance or recently installed conservation practices that require vegetation.. The exposed areas have visible rills. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has low fertility and a pH imbalance.

After Situation:

This typical 1.0 acre critical area is stabilized by smoothing rills and then applying fertilizer, lime and seed or sprigs. When used following the construction of conservation practices, the practice is protected against erosion and will function according to design. Soil amendments will be incorporated at an depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply fertilizer as outlined in the standard with an application of 1 ton of lime typically. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, sprig or drill adapted grass species (such as bermudagrass) for a vegetative cover.

Scenario Feature Measure: area smoothed and planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $304.50 **Scenario Cost/Unit:** $304.50

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$8.18	1	$8.18
Ground sprigging	1101	Includes costs for equipment, power unit and labor.	Acre	$81.04	1	$81.04
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	1	$5.48
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	1	$8.97
Materials						
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$100.34	1	$100.34
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	20	$10.80
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	1	$64.09
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80

Practice: 342 - Critical Area Planting

Scenario: #5 - Dozer, Native Species w PK Lime

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Costs include a dozer for leveling, shaping, or pulling extra heavy tillage equipment, seedbed preparation with typical tillage implements, a dead litter crop, native grass seed, soil amendments and seeding operation needed for establishment.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc) or human disturbance. The exposed areas have visible rills and possibly small gullies averaging 1 foot in depth and 1 foot in width. Gullies and rills are treatable by shaping with a dozer or extra heavy tillage equipment such as a rhome disk and minimal blade work. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance.

After Situation:

This typical 1.0 acre critical area is stabilized by smoothing rills and small gullies with heavy tillage and minimal blade work and then applying lime (if needed) and seed. Soil amendments will be incorporated at an depth of six inches to improve pH and ensure establishment of permanent vegetative cover. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill adapted native grass species for a vegetative cover.

Scenario Feature Measure: area shaped and planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $608.37 **Scenario Cost/Unit:** $608.37

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$57.18	2	$114.36
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$17.20	1	$17.20
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$8.18	1	$8.18
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	1	$8.97
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$23.61	2	$47.22
Materials						
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$100.34	1	$100.34
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	20	$10.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	20	$12.80
One Species, Warm Season, Native Perennial Grass	2322	Native, warm season perennial grass. Includes material and shipping only.	Acre	$70.93	1	$70.93
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$217.57	1	$217.57

Practice: 342 - Critical Area Planting

Scenario: #6 - Normal tillage, Native or Introduced Grass

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Costs include normal tillage for seedbed preparation with typical tillage implements native or introduced grass seed, soil amendments and seeding operation needed for establishment.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc) or human disturbance. The exposed areas have visible rills and possibly small gullies averaging 1 foot in depth and 1 foot in width. All gullies are treatable with leveling tillage equipment such as a disk. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters.

After Situation:

This typical 1.0 acre critical area is stabilized by smoothing rills and small gullies with tillage and application of seed. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill adapted grass species for a vegetative cover.

Scenario Feature Measure: Area smoothed and planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $103.63 **Scenario Cost/Unit:** $103.63

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$17.20	1	$17.20
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$13.37	1	$13.37
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	1	$8.97
Materials						
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	1	$64.09

Practice: 342 - Critical Area Planting

Scenario: #7 - Erosion abatement using trees and/shrubs

Scenario Description:

An existing or developing gully is planted with the appropriate tree or shrub species (e.g. black locust) for the site to help stop further erosion and assist in rebuilding the site. The spacing will need to be fairly dense compared to conventional tree planting. Trees and/or shrubs should be planted on a 7' X 7' spacing or 889 trees per acre. The trees are planted over the entire critical area in an effort to control excessive soil erosion and reduce downstream sedimentation.

Before Situation:

Areas that are void or nearly void of vegetation have resulted in bare soil being exposed to erosive processes. The exposed area may be caused from recent natural occurances (fire, flood, wind, etc.) or human disturbances. The exposed areas have visible rills with moderate to severe gullies exceeding a 3 foot depth and width. Runoff from the area flows into streams, water courses or other water bodies causing excessive sedimentation to the receiving waters. The resource concerns are soil erosion, concentrated flow erosion and degraded plant condition.

After Situation:

The critical eroding gullied area is stabilized by the soil binding properties of the root system of the planted trees and/or shrubs. Soil erosion and the associated downstream sedimentation is significantly reduced, the site is stabilized and vegetation is allowed to re-establish the area. Any tree or shrub species may be used if it is native to the area and meets the site conditions.

Scenario Feature Measure: Tree Seedlings Planted

Scenario Unit: Each

Scenario Typical Size: 500

Scenario Cost: $420.08 **Scenario Cost/Unit:** $0.84

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$26.07	6	$156.42
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.11	6	$108.66
Materials						
Tree, hardwood, seedling or transplant, bare root, 6-18"	1509	Bare root hardwood trees 6-18" tall. Includes materials and shipping only.	Each	$0.31	500	$155.00